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Reviews numerous research studies on personality changes in college students—such as changes in acquisition of skills and information; mental ability; and values and attitudes. Discusses use of mental tests, including personality tests, for studying such changes. Presents recommendations for further investigations and lists numerous references.

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IV-21
Personality Changes in College ²¹Students¹

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Students change in many ways during college. Usually there are increases in the amounts of information possessed about various topics, and in degrees of skill in performing certain tasks. There are changes in interests, which are often accompanied by changed attitudes toward the self and the world. And in rare cases there are more fundamental personality changes, accompanied by the emergence of new values.

College students are available for study for a number of years, and it would seem a simple matter to record numerous systematic observations which could then be used in the best scientific tradition to inform us how the lives of young persons develop and unfold. This kind of research is, nevertheless, beset by numerous difficulties. Systematic study of personality growth or development has been rather limited, especially for the period following adolescence. There has been a tendency either to ignore what happens after adolescence or else to oversimplify it. Consequently, there has not been much agreement concerning either the importance of the various kinds of post-adolescent changes, or how best to study them. From our present perspective, the obvious and easily measured changes may be less important than more subtle ones.

Large individual differences exist among college freshmen, on numerous characteristics, which makes the problem of evaluating subsequent changes very interesting, but more difficult (McConnell and Heist, 1959). Individual differ-

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ences are so large that we should not expect the same changes in all college students. In addition, the absence of comparable control groups of non-college subjects makes it difficult to distinguish change having its source in the college experience from other change due to other experiential or maturational influences. Analytical and statistical methods appropriate for attacking the problems which arise in intensive longitudinal studies are only partially developed; and, in the case of mental measurements some difficulties have arisen which complicate the problem of designing instruments for measuring change (Lord, 1958).

Studies of college students will be more meaningful when the social function of the college is better understood; personality development always proceeds within social organizations which have aims or purposes. Psychoanalytic studies of development, for example, have emphasized phenomena which have meaning in relation to the family. College students are subjected to many extra-familial influences, to which their reactions vary greatly, depending upon their earlier development. We need to learn more about the effects on students of differences and similarities between the home and the college cultures. Even more important, we need to know about the reciprocal influences which students might exert in order to modify these cultures.

College students are expected to adjust to the culture; change and development are acceptable only to the extent that they do not lead to "mal-adjustment," which is considered a problem for counselors and psychotherapists. The value of adjustment, in the sense that it entails minimizing the amount of effort or distress required by the individual in order to get along, has been increasingly questioned by social observers during the last decade. For there

has been too little criticism of conditions under which the individual is expected to conform.

Parents will probably continue, nevertheless, to hope that their children will have "no problems of adjustment" in going away to college. In America the college is still regarded as an ally of the parents in the prolongation of adolescence, a time in life when there happens to be a maximum concern with - and perhaps in recent years a maximum respect for - cultural standards and values. In our affluent society college students now regard social issues or movements as irrelevant to more immediate problems; attaining adulthood is not viewed as a problem related to cultural change. Consequently, a conservative attitude has prevailed.

Perhaps conservatism and the desire for stability of values has increased in reaction to the increased instability of world conditions. Wheelis (1958) and Snow (1959), among other writers, have described how it has become necessary, because of accelerating social changes, for educated persons everywhere to undergo basic value changes; for the first time in history this has become necessary for large numbers of persons during the span of a single generation. Yet there seems to be little thought given to this fact, even in our institutions of higher learning. Burkhardt (1959) has urged colleges to make radical changes in their educational programs in order to maintain integration of curricula under new and rapidly changing conditions. But resistance to change affects educators, too, who continue to seek stability in traditional uniform standards and practices.

Traditionally Americans have tended to deny the importance of individual differences. There has always been the danger that the ideal of equal opportunity for all would be misconstrued to mean that all persons are equal -- on almost any

characteristic. Recently the tendency to view college students as a homogeneous mass seems to have increased; just as it is supposed that, individually, they will remain basically unchanged during college, they are also viewed as practically indistinguishable, each from the other, in needs, aspirations and development. Instructors who believe that students are all alike are of course in no position to help educate them individually. Conversely, students who see most adults, including parents and teachers, as personifications of a common set of stabilized cultural values are not likely to change much during college, or to see the need for change. The denial that important human differences exist also makes education more difficult, simply because it is intrinsic to the sciences and the arts that distinctions and changes be recognized and studied; and this is no less true of social science, which must focus increasingly upon group and individual differences and changes.

These introductory remarks merely suggest the complexities which must be faced today in studies of personality change in college students. Development in young persons cannot be understood apart from their general culture, in which "development" is believed to be coincidental with, and in some cases equivalent to, adjustment. Despite this difficulty, and the others which have been mentioned, it is possible to discuss in general terms some of the more obvious kinds of changes which have actually been observed in college students, and to pose some research problems. In the following section we will first consider a more immediate research problem, however, which has persisted partly because of cultural conservatism, or cultural lag.

The Use of Mental Tests for Studying Changes in Students

The modern social scientist knows that personality does not develop in a vacuum, and he is therefore interested in social, religious and political beliefs or dispositions. Accordingly, he often needs to assess persons' attitudes toward parents, government, sex, deity, minority groups, and the like. But since these topics are often controversial, he may find himself in hot water. He may be attacked as unscientific or subversive (Nettler, 1959; Whyte, 1956) and it then becomes difficult for him to explain what he is trying to do without seeming unduly defensive. The study of personality is still, to use Frank Pinner's expression, a "dissentual" discipline.

Nevertheless, if we are really to "educate our publics," there seems to be no alternative to offering explanations. This is easier said than done, for much that might be explained is highly technical. For example, how does a personality test, or scale, work?

Any mental test is simply a device for arranging persons in order of the amount of some characteristic which, by inference, they possess. Scores for the responses to items which make up the test are added to give a total test score for each person. Consequently, the persons can be arranged in the order of their total scores, from low to high. Briefly, we say of any mental test, or scale, that it "orders persons." Different tests are constructed for the purpose of ordering persons, according to the amounts of different kinds of characteristics which they possess, for example, information, aptitudes, attitudes, and interests. In a single personality instrument, there may be a dozen or more scales, each of which orders the respondents on a different characteristic, or "trait."

Now it was stated that a test orders persons on the amount of a characteristic which, by inference, they possess. How dependable is this kind of inference? There are two ways of checking it. First, the correctness, or precision, of any ordering obtained from a single administration of a test may be checked by statistical inference (Lord, 1955; Webster, 1960); if the test orders persons with relatively few errors (few departures from the true order), it is said to possess high reliability. Second, an order can be compared with other orders of the persons on other characteristics which are of significance in psychology and education; it can be compared with orders resulting from different approaches to the same behavior, and the kind of validity which the test is said to possess will depend largely upon these "correlations with other variables."

It can therefore be made clear that a mental test is a measurement device which is useful for scientific purposes. Science is the pursuit of truth by means of experimentation which is guided by theory. Boring (1950) has asked, "Is a test an experiment?" The administration of a mental test is a scientific experiment, which is successful if the errors of measurement are sufficiently small, and if the characteristic measured is of importance in psychological theory.²

But the personality psychologist must obtain his data directly from persons. He is not in the position of a physicist or biologist who can closet himself in a laboratory, ignore social pressures, and emerge later with findings which make possible new weapons or vaccines. Personality tests are subject to public scrutiny and to the inexpert criticisms of academicians and laymen alike,

²By analogy with physical science, test items are simply measurement trials, the sampling errors from which can be used to estimate the true differences among persons (Sheffe, 1956). If constants for human populations are also to be estimated, then, of course, persons, as well as items, must be sampled.

and the underlying principles are rarely understood. A colleague of ours had to try to explain his tests to some religious leaders and a college dean after they had noted that one-fourth of a senior class had responded "false" to the item, "I believe there is a God." The authorities were disturbed because only one-tenth of the same students had been agnostic or atheistic, as indicated by response to this item, when they had entered college nearly four years before. At the same time some faculty members were upset because they felt that a change of only 15 per cent in the direction of skepticism or disbelief did not reflect much credit on the liberal aims of the institution. They thought that the percentage should have been much larger.

Our colleague was puzzled, too, but only because of the problem of communication which had arisen -- certainly not because he supposed that his data for this item showed that the college had made the students any more or any less religious. In the first place, there had been no non-college control group for the period in question. Secondly, it could be pointed out that it is not necessary to assume that religion is simple conceptually just because college students are asked to respond to a simple item as though it were; for example, some theologians believe that "God" is a very ambiguous word. Finally, this item by itself may not even differentiate agnostics who tend to be atheists from agnostics who tend toward atheism -- a special study would be required to determine this.

A few dozen such items, all of which concern traditional, or orthodox, religious beliefs or practices, will be found to form a test on which students order themselves quite accurately (Webster, Heist, McConnell and Yonge, 1960). That is, students do not find such items to be very ambiguous. And, Agnosticism or Atheism, although lacking precision, seems to be a suitable name for the

characteristic measured. Critics can be shown that the relationship between Agnosticism or Atheism scores with several other measures increases our understanding of students. For example, a positive correlation with scores on another scale, Developmental Status (see p. 47), reveals that the more agnostic students are also more likely to be striving for increased freedom and independence, and, therefore, that the rejection of traditional religious attitudes is only one aspect of a much broader rejection of family (and other institutional) authority. Corresponding to optimum development at this age, there might eventually even be discovered some optimum level of religious skepticism.

Now personality scales are usually valid in the sense that the names attached to them actually describe observable aspects of personality. As an example, consider the following experiment. Each of 5 members of a research team interviewed the same 50 subjects; after each interview, adjectives which seemed best to describe the interviewee were checked from a long list, independently by each interviewer. It was later found that the 14 scoring highest on a scale for measuring "Impulse Expression" had been described by their interviewers as "impulsive," "irrepressible," "erratic," "vigorous," "uninhibited," and so on, while the 14 low-scorers had been described as "retiring," "silent," "reliable," "inhibited," "reserved," "shy," and the like (Sanford, Webster and Freedman, 1957). The literature on testing contains many validation studies, some very similar to this one; others employ groups already known to differ from each other in relatively well-established or fixed ways. In the case of the Agnosticism or Atheism scale, however, validation could be carried out only by relating scores to other kinds of self-report instruments aimed at assessing subjects' religious beliefs and practices.

Some personality scales are also valid in an indirect, less obvious way, and for this reason can have a special usefulness. The Vassar Repression and Suppression (RS) scale is a good example (Webster, Sanford and Freedman, 1957; Webster, Heist, McConnell and Yonge, 1960; Freedman, see Chap.). One kind of subject responding to items in a personality inventory will tend, often quite unconsciously, to reject (answer "false" to) a disproportionately large number of statements which seem inexact, peculiar, or unconventional because he has a strong need to present himself in a favorable light; while another subject will do just the opposite, that is, he will indorse many such items, which collectively give an impression of imprudence, unconventionality and lack of inhibition. The first subject is a high-scorer on RS, the second a low-scorer. The "realistic" place to score on the RS scale is therefore near the mean. It is probably impossible for a subject to falsify responses without at the same time shifting the RS score in one direction or the other, a fact which is useful for assessing the validity of the entire instrument. Other personality measures can be adjusted, if it is desired, to free them from the effects of these kinds of exaggeration which are measured directly by RS (Webster, 1958; Webster, 1959). But even when other scales have not been so adjusted they can be interpreted with more confidence after knowing the subject's RS score.

Tests are substitutes for and, in some respects, improvements upon interviews. When there are large numbers of subjects it is seldom feasible to interview them intensively enough to learn very much about their basic intrapsychic dynamics. There has been a popular misconception that interview data are very helpful for predicting behavior, but in practice it has always been found that test data are superior for this purpose. Interviews are indispensable for studying change in college students, but they serve rather different purposes and

therefore cannot supplant test data. Interviews are especially superior to tests for basic research in which there is uncertainty about the exact questions to be asked.

It would be impractical to attempt to understand changes which occur in college students without relying heavily upon mental tests, including personality tests. Data obtained by other methods are less economical, less objective, less reliable and less valid. But even the more precise tests order subjects imperfectly, and this seriously limits the usefulness of the test-retest difference scores which must be used for estimating the true change (Kelley, 1947; Lord, 1956; Lord, 1958; McNemar, 1958). It is impossible to measure change by means of test-retest difference scores unless the tests used have high reliability; otherwise the difference scores contain such a high proportion of random error that they are meaningless. An exact solution to the problem of comparing individuals or groups on amounts of change will probably have to await the development of new kinds of scales (Fagot, 1959; Siegel, 1956).

In addition to the criticism that personality tests are invalid or that they do not work at all, there is sometimes heard the opposite complaint that they work too well, or that they give too much power to the psychologist. Test data can be misused, of course, but so can any other kind of personal information, including interview data. It is always necessary to protect the privacy and best interests of the individuals who provide the information.

In summary, the use of mental tests, and especially personality tests, is viewed unsympathetically by large numbers of otherwise well-informed persons. This is partly because tests, unlike some measuring instruments, must be used in full view of, and with the cooperation of, the public. It is therefore mandatory, if research psychologists continue to use tests, that they demonstrate

for others the scientific merits of testing. This will not be easy to do, partly because the explanations required pose difficult communication problems. If we are to improve our understanding of the personality changes that take place during college, the evidence indicates that we have no alternative but to rely increasingly on test-retest data.

The following sections will be concerned with various personality changes which are important in college students, and which are currently studied by means of a variety of approaches, including mental testing.

Changes in Skills and Information

The change most generally expected of college students is the gradual acquisition of skills and information. Among all changes which occur, this one is almost universally sanctioned as a legitimate educational goal, partly because it is thought to be essential for most kinds of work which might be undertaken later, but also because it is believed that it can be achieved individually by hard work. The value of individual effort which produces tangible results is acknowledged generally in our culture, and colleges have been eager to prove themselves by emphasizing the importance of their own tangible rewards, the most immediate of which are grades and diplomas.

The acquisition of skills and information is not only the most generally acceptable goal of education, it has also been the easiest to measure by means of examinations. It has often been shown by means of achievement examinations that skills and information possessed by students increase during college (for an example, see Learned and Wood, 1938), although it remains unclear how much is retained after graduation. The college "grade-point-average" is largely a

measure of the student's ability to satisfy teachers, through achievement tests, that some acquisition of skills and information has really taken place. Nor do most teachers believe that grades can represent much more than this, for they know that they themselves must assign the grades and that their own responsibility for students' general development cannot reasonably be extended much beyond some help with particular courses of study. Teachers are sometimes heard to argue that it could not be otherwise because the kind of measurement which results in grades, even though inadequate, is the only kind which will be accepted as fair by students. There are also other reasons for this limitation on the meaning of grades, some of which have more to do with the cultural and institutional role of the teacher than with his art of teaching or his understanding of young persons.

Many teachers--perhaps a large majority today--regard the grade-point-average as an inadequate measure of educational growth. There are a number of reasons for this. First, most instructors directly delimit the meaning of assigned grades by informing students, usually early in courses, that grades will be based only upon specific kinds of material, usually assigned reading or problem-solving skills, the retention of which can easily be tested later. Second, in experiments where faculty are asked to identify students for whom the college has been most successful in its aims, those named are not always A-students (Brown, 1959). Third, studies of college graduates, for example, Vassar alumnae (Freedman, see Chap.), reveal that grades achieved in college are usually obscurely related to functioning or performance after graduation. Fourth, college grades are only moderately related to identifiable antecedent variables--as Fishman observes (see Chap.), literally hundreds of college-grade-prediction studies have established the fact that only about half the variation in grades is associated

with aptitude scores, previous high school grades, and study habits. The other half is related to nothing which has been isolated. Fifth, it is obvious from student interview data that the motives which lead students to achieve high grades are often indistinguishable from the desire simply to please and to obey parents, or similar authorities, who happen to value high grades. Sixth, students and teachers alike often suggest that high grades are only formal requirements-- requirements for graduate school, prerequisites for later professional status, and the like--and it is inferred that grades cannot at the same time be measures of general educational status or development. Seventh, just as the achievement of high grades is insufficient evidence that education is taking place, failure to obtain high grades may not indicate that education has not taken place; at least this is found to be the case in studies of subjects later identified as creative or highly productive (MacKinnon, 1959). Eighth, due to the way the curriculum is taught in most colleges, grades are insufficient as indicators of educational progress but are, nevertheless, necessary for that purpose; there have also been some educational experiments, however, in which grades could also be shown to be unnecessary. Ninth, it is now known that measures other than grades are related to personal--hence to educational--growth and development (see p. 50). Finally, nearly everyone knows a few students for whom the need to achieve high grades seems actively to be interfering with the educational process. Often students appear to be learning much less than they could if they were not so absorbed by a need to satisfy grade requirements; for example, some students systematically memorize much material before examinations, in a fairly automatic fashion, while others feel so insecure because of their inability to do this that they are unable to function well during examinations. For either kind of student the educational

value or the validity of such examinations seems questionable.

It is not very surprising, with these limitations, that the grade-point-average is recognized to be an inadequate measure of general educational growth. Nevertheless, grades are not likely to be abolished. As we learn more about the limitations of assigned grades, they are undoubtedly becoming more, rather than less, difficult to eliminate. Increasing numbers of students are attending college, and grades based largely upon achievement examinations are a part of the traditional bureaucratic machinery for "processing" them; also, emphasis on formal requirements for admission into the various occupational specialities, or into graduate school, is increasing rather than decreasing, and assigned grades are one of these requirements.

One thing which happens to each college student is that he must solve the problem of what grades will mean for him. This is usually not the same problem that it was in secondary school, where both the intellectual interests and the kinds of competition encountered are likely to have been quite different. Some students experience great anxiety for the first time in competing academically in college, and there may, of course, be some good reasons for this, since scholarship renewals, admission to graduate school, and the like, usually require a minimum grade-point average. Other students, who need not depend on scholarships, or who do not plan to enter graduate school, may be almost totally indifferent to grades, but typically only a few of these will succeed in obtaining a very extensive general education; this is because only a few will spend much time in serious intellectual activities which are not required by the faculty.

It has long been recognized by teachers that academic performance as measured by grades is a function not only of the intellectual potential or capacity of a student but also of motivational or personality factors which affect achievement

Terms like overachievement and underachievement are somewhat common in academic circles. Over and underachievement refer to the attainment of grades higher or lower than would be anticipated on the basis of high school grades or aptitude and achievement test scores.

Prominent among recent studies of personality and non-intellectual factors associated with over and underachievement are those which have been carried out by research workers on the staff of the Division of Student Mental Hygiene, ~ Department of University Health, Yale University (Rust, 1954; Rust, 1958; Neugeborgen, 1958). Rust (1958) reports on a study of under, normal, and over-achievers in Yale College and Yale School of Engineering,

" in the face of pressure from peer groups overachievers are less likely to give in to such pressure. This would seem to demonstrate a certain self-propulsion which operates even when adult supervision is absent or diminished Overachievers were less likely to report that they smoke or drink or that they have had sexual intercourse Overachievers are more likely to have selected an occupation Over-achievers are less likely to have a Yale father, are more likely to have attended high school only (rather than prep school or both) and are less likely to expect help from their family, relatives or from close family friends in getting their first permanent job."

Eldon Kelly (see Dressel, 1958, p. 149) investigated, in a doctoral study, why some individuals consistently received higher grades from their instructors than they received on the common final examination, while others reversed that pattern. Except for two students, the first group were all women, while in the second group men predominated. Eliminating the effect due to sex, a

high instructor grade bias could still be isolated; it was due to students of lower ability but high motivation toward placating instructors by prompt fulfillment of assignments; and the opposite bias (with the effect of sex eliminated) was traceable to confident, high ability students who were disinclined to complete assignments in which they saw little value.

Acquisition and retention of skills and information requires, of course, more than mere knowledge of the content of various fields, which is most readily measured by grades. Involved also are diverse kinds of intellectual functioning. Perusal of college catalogues shows that specified among the goals of education are enhancement of such qualities as independence of judgment, critical thinking, creativity, freedom from irrational prejudice, and the like. The extent to which grades reflect such characteristics is almost completely unknown.

A conspicuous exception to the dearth of research on this problem are the studies reported by Dressel and Mayhew (1954), which were sponsored by the American Council on Education. These authors summarize and evaluate 11 years of investigation of programs of general education. Subsequently, a more detailed report by Dressel (1958) appeared on the Basic College at Michigan State University.

The ACE Committee on Measurement and Evaluation decided to attempt to evaluate the extent to which improvement in the ability to think critically and to communicate effectively took place among students enrolled in certain programs of general education. The following passage from General Education: Explorations in Evaluation illustrates the kinds of pioneering studies which were carried out and the complex nature of their design (p. 66).

"After considering a number of objectives frequently claimed for general

education courses in social science, the Intercollegiate Committee on Social Science Objectives selected critical thinking for its area of particular inquiry. The meaning of critical thinking in social science was specified in a list of abilities and was then exemplified by test situations and examples of student behavior. After the members of the committee were convinced of the validity of their conception of critical thinking in social science and had tried out on students various kinds of appraisal techniques, an objective-type test of Critical Thinking in Social Science was developed, revised, and printed in a final form. This test was administered to a great many entering freshmen at a number of participating colleges, and to these same students or to comparable groups at the end of the freshman year and at the end of the sophomore year. The changes in test scores over these time intervals were studied with a view to determining their magnitude and the factors associated with them. In general it was found that students gained in ability to think critically in social science over a period of a year, although the size of these gains varied widely, depending on the institutions that students attended. Attempts to teach critical thinking in social science by making minor changes in particular courses did not appear to result in greater growth than was found in courses not making overt attempts to teach this skill. Attempts to relate growth in critical thinking ability to course organization or to specific teachers suggested that both of these were highly important, although the research could not identify specific factors that seemed to be operative."

The problem of understanding the relationship between the process of acquiring knowledge, as measured by achievement tests, and the measured abilities and other personality characteristics of students is a complex one, the investigation

of which has hardly begun. In the next section we will continue with a discussion of mental ability in college students.

Changes in Mental Ability

During childhood there are dramatic yearly increases in the ability to perform tasks which require reasoning, memory, judgment, and various kinds of perceptual and motor skills. From year to year these increments of ability become smaller for most of the tasks which are sampled by standard intelligence tests. As a result, it has been widely believed that by age 16 or 17 further increases in mental ability are negligible. This is an absurd oversimplification of a complex phenomenon of great importance, an oversimplification which persists despite much growing evidence to the contrary (Pinneau and Jones, 1958). Now it is obvious that "maturation" of intelligence does not take place in the absence of learning, especially after infancy. Perhaps "growth" of intelligence would also indicate fairly accurately what is intended here, since we wish to convey that both nature and nurture are necessarily involved in the changes observed.

There are large individual differences in the time in life at which a maximum, or ceiling, of measured mental ability is reached. Some individuals will fail to gain beyond age 18, but many will continue to gain after age 21 (Bayley, 1957). In a study by Bayley and Oden (1955) gifted adults were found to make substantial gains in reasoning ability even after age 30, and the obtained gains were substantially greater for the gifted subjects of either sex than for their spouses. In studying a number of typical composite mental ability growth curves, representing test-retest data for numerous subjects (for example, Bayley, 1956, Figure 25), it becomes evident that more intelligent subjects at any

particular age, in comparison with less intelligent persons of the same age, are not only increasing in measured ability at a faster rate, but also are further from their point of maximum ability (they are further both in time and in amount of ability). An immediate corollary is that at any given age, persons of higher ability in these samples could expect a greater total increase in ability in the future than could persons of lower ability. Of course, curves for single individuals sometimes show deviations from this, over the years, in the form of rather marked ups and downs; but usually even the individual curves show the the same trend which is very striking for composite longitudinal data.

Many other observations agree with those just cited. For example, mental defectives usually reach their approximate maximum ability at an earlier age than those of average intelligence, just as the latter usually reach an approximate maximum earlier than the more gifted. In general, the more complex an organism, or any growing organization, the longer will be the period required to reach maturity, or maximum development. This is true phylogenetically, for the period of dependence and great immaturity following birth lengthens as we move from species to species toward man. Terman (1947) has reported that gifted persons are unlikely to become maximally productive until well after age 40.

Further increases in mental ability may therefore be anticipated for many students after they enter college. The growth of mental ability during the college years should be of importance to educators; marked increases in measured aptitude have been observed for some students (Florence, 1947; McConnell, 1934; Silvey, 1951). Even though the observed increases are striking, subsequent improvement of intelligence tests will probably reveal even more ability change, both in kind and in degree. For college students are expected to perform tasks which require more ability, that is, more advanced reasoning, skill, judgment, etc.,

than we are currently able to measure. For many tasks expected of college students, norms for younger persons either do not or cannot exist. For example, college students drive automobiles, solve integral equations, understand propaganda, and write poems. Concerning the simplest of these, automobile driving, data collected by insurance companies suggest that judgment in male drivers has not matured sufficiently before age 25 to entitle them to the ordinary premium rates. In comparison with older students, both learning and mental ability are in a highly undeveloped state in college freshmen. For example, abilities in philosophy, art and mathematics are undoubtedly very poorly developed, even in "brilliant" college freshmen.

We could have written especially in brilliant freshmen. For we have noted that the higher the potential mental ability, or capacity, the less likely it is to have been approximated by the time of admission to college. And, therefore, the freshman student of superior ability will, more often than not, be less mature, in terms of his own developing ability, than will his less gifted friends. Superior students mature later than other students, and this should be taken into account in their education. The erroneous idea that gifted persons mature early has undoubtedly arisen because of comparisons of their behavior with that of others of the same age. Such comparisons provide evidence of superior performance by the gifted, but they cannot give information about the growth or maturing of ability within the individual. Records of the early precocity of geniuses may seem at first to contradict such a theory -- until we also take into account their later functioning. The theory is certainly valid for such men as Beethoven, Freud, Picasso and Shakespeare, whose later productions reflect increased maturity.

Americans often deny that individual differences in ability are of much importance in education. During the last century it was generally believed that

any mind could be trained, by hard work, in much the same way that a muscle can be developed by calisthenics. Almost any special intensive learning was thought to be generalizable, in the sense that it could be put in the service of new learning in other fields of knowledge. Numerous failures of this theory of "transfer of training" led to research which cast serious doubt on its validity (Thorndike, 1924; Woodworth, 1938). Subsequently, Guilford (1950) has urged that the problem of transfer be reformulated, and pragmatic motivation psychologists have suggested that "transfer" can indeed take place for nearly any student if it can be interpreted as the gradual extension of curiosity to include new but related subject matter. A student will probably learn more readily if first he sees clearly how the material is related to what he already knows. This theory therefore may have real merit, providing allowances are made for individual differences in the ability to understand relationships, but there are now signs that it is the fallacious earlier theory which is regaining influence among college teachers. For their belief that assigning more work is the most effective way to improve education seems to be gaining ground.

Extensive research initiated in the 1930's (Aikin, 1942) has been effective in leading to changes in secondary education, and it appears that colleges might also benefit from similar investigations of the effectiveness of their programs. In the study by Learned and Wood (1938), large samples of college students were tested for various kinds of academic achievement. For example, 85 per cent of the sophomores tested in 1930 showed gains in achievement scores by 1932, the senior year. Learned and Wood wrote (p. 44),

"The fundamental conclusion of this study . . . is that each student's self-education should constitute the controlling object of any educational agency

that deals with him. In order to endure, an education must be self-achieved. To place this fact in the foreground should make us wary of factitious aids that obscure the simplicity and arduousness of genuine achievement or that weaken a student's responsibility with over-tutelage."

Now, contrary to the recommendations of these studies, the high-ability freshmen enrolled at the "better" liberal arts colleges today are likely to say, in interviews, that they do not have time to think. And in the "more typical" liberal arts colleges they complain that a lot of sheer memorizing of minute details is required and that the work is neither new nor challenging.

At the same time the student of low ability is not likely to be able to keep up in either of these kinds of institutions. There seems little doubt that any student can benefit from education beyond secondary school, providing he is not expected to compete directly with those who far exceed him in ability. We have interviewed students whose entire waking moments were spent memorizing material in order barely to remain in college. For example, a student at a leading women's college had been able after nearly two years there to make one friend, a girl like herself, but the time available each week to spend with the friend was pitifully brief -- five minutes carefully planned and eagerly anticipated before a class which they both attended. Even though such cases are not especially common, they are certainly no tribute to higher education today. Too often the only adults who might give the advice which would lead less capable students to choose less demanding academic programs are those who believe that individual differences in ability can somehow be ignored or minimized.

Even though the more intelligent freshman is likely to be less mature than others, he is well able, because of his high ability, to profit from great

freedom in his studies; probably honors programs are to his advantage. Because his total personality change during college, including the increase in ability, is likely to be greater than average, however, it follows that he may be able to use even more adult guidance, tailored to his needs, than those of less promise.

The recognition that students differ widely in intelligence, and also that they vary in their rates of mental growth during college, need not imply that more typical students will be either ignored or less well educated. Nor does it imply that constructive change will take us in the direction of creating an "intellectual elite." It is especially important to keep in mind that ability measures can reflect only a relatively small part of personality functioning, and that, consequently, they will probably always be very insufficient predictors of later intellectual performance (Heist and Webster, 1960). Increased interest in exceptional students, including the slow as well as the gifted, should help us to understand all kinds of students. Florence (1947, p. 81) has urged that "Individual faculty members must accept the responsibility of providing for varying rates of growth and different types of development." Gregg (1957) presents a number of ideas about the education of early and late-maturing students.

As we come to know more about the educational process it will be found, due to the complexity of personality, that there are more and more students who are exceptional in some way. It will be found that study and appreciation of the diversity among students is more profitable than inventing reasons for ignoring their differences. The individual colleges could make a start at this by accepting more responsibility for understanding both differences in ability and differences in the rates at which abilities mature among their students. At the same time we should not forget that we still know very little about the role of knowledge and thinking in the overall functioning of the person (Sanford, 1959).

Changes in Values and Attitudes

Personality functioning is reflected by numerous observable characteristics, among the most important being interests, attitudes and values. Attitudes toward the self, toward others and toward institutions reveal to some extent the underlying motives (or needs) and values which are more central to personality, in the sense discussed by Sanford (see Chap.). Whenever education has important effects it alters what is valued; in turn, changes in values influence attitudes and interests. In the actual developmental process the reverse also occurs because new experience leads to modifications of interests and attitudes, and over a period of time the central values also become involved. In this process interests and attitudes tend to be interdependent; the diversification and deepening of interests, which is commonly observed in young adults, is often accompanied by modifications of attitudes, which in turn can lead to new or changed interests.

There are a number of possible approaches to the discussion of values and attitudes as they are related to personality development, all of which, at the present time, present certain organizational difficulties. An historical presentation would have obvious merit, but tends to become very complicated, especially for the more recent research in which both personality and cultural characteristics have been increasingly emphasized; also, the historical succession of the various studies is unrelated to any theory of personality development. But any approach oriented solely to the development of the individual personality would also be complicated because our understanding of such change is very limited, and general principles rarely emerge from among the diverse kinds of findings; studies have tended to be sketchy and to lack a common language. It is fortunate

that in the future a more coherent general theory will be available (see Sanford, Chap.).

One kind of complication which appears after surveying what is known today, is that college students are involved with problems which depend on different social conditions in different decades; for example, nearly all studies have found that an increased "liberalization" of attitudes occurs in students during college, but, for studies of the 1930's this liberalization has a somewhat different meaning than it does now. It is a truism, of course, that "personality" and "culture" go hand in hand; but dualistic habits of thought persist, and it is often necessary, for the sake of clarity, to choose between emphasizing one viewpoint or the other in research discussions.

The actual presentation which follows is therefore a compromise of several possibilities. A brief historical treatment of earlier studies will be followed by discussion of research which has emphasized various features of college cultures. Some investigations, next reviewed, have emphasized the importance, in the developmental sequence, of particular personality characteristics. This is followed by discussion of the general problems which have emerged.

It should be remembered that the following discussion of attitudes and values, which appears in this one section as though it might refer to a separable feature of personality, is also restricted for organizational purposes. Attitudes and values are related to aptitudes, abilities and other cognitive characteristics, some of which have been discussed earlier, although the relationships are often indirect or obscure (Heist and Webster, 1960; Mayhew, 1958). For example, it is usually found that authoritarian attitudes are negatively correlated with aptitude measures, but the interpretation of this fact has been subject to controversy.

As another example, Kagan and his colleagues (1958) found that projective data of children who showed large gains in intelligence over a few years differed in a number of ways from similar data for children who, over the same period, had shown decreasing IQ's. The observed differences are partly attributable to differences in motivation and attitude. In general, cognitive and motivational characteristics are interrelated within personality in very complex ways.

Although the earlier studies were often quite limited in scope, they provide a useful background for current investigations. Quite a few of them compared concurrent (cohort) college classes on attitudes or values; but as Corey (1936) noted, it could not properly be assumed that the differences observed were identical to those which would have been obtained by retesting the same subjects as they proceeded through college. The technical difficulties inherent in longitudinal data collection and analysis, which are sometimes exasperating, should not serve as an excuse for avoiding longitudinal studies. Courtis (1948, p. 63) has urged that data be transformed so that we can ". . . measure, compare and predict in terms of maturation units," and this obviously would require longitudinal data. On the other hand, chronological age is highly correlated with general development, and it is also easy to relate to secular social phenomena; therefore, age-level (as distinct from longitudinal) data may also be helpful in understanding human development, especially in relation to varying subcultures. In a study carried out in the 1930's by Nelson (1938), which used data from 18 institutions, it was found that differences between the four college classes were greatest in state universities and Quaker colleges, least for other denominational institutions. Freshmen were more homogeneous in attitudes than seniors, and, on the average, more conservative than upperclassmen. In some studies at Vassar

College many freshmen-senior mean differences were of about the same magnitude whether cohort or longitudinal samples were used (Webster, 1956, 1958). Testing subjects of identical ages in different decades has also proved useful, for it reveals cultural trends in attitudes (Buck, 1936; Pressey, 1946).

Most of the earlier longitudinal investigations of changes in student values and attitudes revealed small but significant changes in one or a few kinds of attitudes. Usually investigators were limited to interpretation of test-retest scores on the Thurstone attitude scales, or on scales of the Allport-Vernon Study of Values. Except for minor discrepancies, the differences observed would still be described today as changes in the direction of a more liberal attitude on social issues and a more tolerant attitude toward persons. Typical of careful longitudinal studies of the 1930's were those by Jones (1938) and by Farnsworth (1937). A few follow-up studies, for example, one reported by Bugelski and Lester (1940) and, more recently, a study by Nelson (1954), show that the gains in liberal attitude made in college during the 1930's persisted or increased after graduation.

Research reported after 1940 began to be more complex. Hunter (1942, p. 243) wrote, in a report on changes in attitudes of four successive classes of college women, that "no evaluation of educational outcomes is adequate without appraisal of attitudes and interests and other of the more subtle aspects of personality." He found that a number of changes, in the direction of increased liberalism, had taken place by the senior year. Seniors were more cautious than freshmen in indorsing extreme statements. Burgensister (1940), in exploring the permanence of interests in Barnard women, administered an interest test, a values test and several other instruments to 164 volunteer freshmen; subjects

were interviewed after the first testing, and retesting took place at the end of the sophomore year. One of Burgemeister's conclusions was that students who minimized or avoided social participation and activities possessed deeper, or more permanent, intellectual interests. Kuhlen (1941) administered the Pressey Interest-Attitude test and other instruments to representative samples of students at Ohio State University, and later retested some of them in the senior year. Scale validity was sometimes checked against large numbers of anonymous ratings obtained from subjects' close acquaintances. Kuhlen concluded that interests had broadened during college, especially for women, and that there had been a sloughing off of early "disapprovals." He asks a significant question, "Has there occurred an increased appreciation of human qualities?" From subsequent research the answer is very likely yes.

In a study by Arsenian (1943) before the war, conflicts over changes in religious attitudes were found to be extensive in men at Springfield College. A decline during college in the religious values mean score of the Allport-Vernon instrument was observed, the change being greater for students in some majors (health and physical education) than in others (social science majors). Arsenian noted that the change was away from formal, ritualistic, dogmatic belief to a more tolerant, humane, social belief. Three-fourths of the students thought that their attitudes on religion had changed during college, and upon further inquiry the others were also found to be aware of unresolved religious conflicts. In the study by Nelson (1938) freshmen were more favorably disposed toward religion than were older students; freshmen were more likely to indicate that they went to church and believed in God. We shall see later that college students still experience significant changes in religious attitudes.

A study of students at Bennington College by Newcomb (1943) was the first to relate expressed attitude change, in any systematic way, to both the initial values of students and to the social and academic values of the college as a community. Students as a group became less conservative during college, but maintained fairly well their relative positions within classes as conservatives or nonconservatives. Certain "response set" effects were noted, supporting Hunter's observation that seniors are likely to be more cautious or critical; for example, Bennington seniors were more likely to disagree with conservative statements than to agree with nonconservative statements. Attitude change was only weakly related to choice of major, but was strongly dependent upon community relationships. Active community participation and lack of conservatism were positively related; both were prestigious and popular. Students known to be interested in public affairs were highly nonconservative, which may also to some extent have been a function of the times. Since the students viewed the community as nonconservative, negativism toward the community was associated with conservatism, which is contrary to what can be observed in many communities. Newcomb believed that nonconservative social attitudes were developed at Bennington primarily by those who were both capable and desirous of cordial relations with community members.

Newcomb (1946) also showed that the process of acquiring and retaining information on a controversial matter is related to the process by which an attitude toward it is acquired, and that attitudes of others, that is, a local attitude climate, will be involved. It would be difficult to find a topic of greater relevance for education. Newcomb's work initiated a new trend in studies of college students; subsequently, it was essential not only to measure changes in

students, but to study in more detail the determiners of change which could be isolated, not only in the personalities of students, but in the social dynamics of the college community as well.

We will next discuss some more recent research which has focused upon certain aspects of college cultures. An intensive longitudinal study of Vassar College students was initiated by Sanford (1956, 1957, 1958) in 1952. The study utilized a wide variety of test and interview data; it emphasized both the characteristics of the college culture and the background and personality characteristics of students. Freedman (1956), Bushnell (1959) and Sanford (1958) have described the student culture at Vassar in some detail. The freshmen spent more time than other students in adjusting to various aspects of college life, and while they were learning how to satisfy academic requirements, they were also finding ways to meet the demands of certain social pressure groups, such as parents, faculty, and boyfriends. The process by which students brought the demands of such groups into perspective also encouraged relationships of varying depth and meaning with the other students who had similar problems. Hence a powerful student culture, or peer group, existed.

The values of the peer group are partly the values of the larger culture, in which social adjustment is of great importance. Freedman wrote (1956, p. 14) that the student culture "is the prime educational force at work, for . . . assimilation into the student society is the foremost concern of most new students," and "academic aims and processes of the College are in large measure transmitted to incoming students or mediated for them by the predominant student culture." This culture emphasized friendliness, acceptance, and leveling of individual differences. Sanford noted (1958, pp. 11-12) that the student culture contends that "the college

work is to be taken seriously, but not too seriously," and "if an ethical decision has to be made, the proper course is to see what the others think." Bushnell emphasized that the lack of commitment to intellectual objectives was related to students' desires to maintain feminine identity, or to "an orientation toward home and hearth."

There was a small but relatively distinct subculture at Vassar made up of students successfully undergoing psychotherapy (Nixon, 1960; Freedman, 1960; Webster, 1956). These students differed consistently from their classmates in being more disturbed, but at the same time less authoritarian and more free to express impulses. These kinds of differences indicated that psychotherapy patients were in general more like seniors than freshmen, both in attitude and in the amount of personality disturbance experienced. This suggests that educational development may definitely be enhanced for some students by psychotherapy. In larger institutions, psychotherapy patients may not form as distinct a group.

In some institutions, attitude changes are different for the different subcultures associated with the various undergraduate academic majors; as will be noted later, there is evidence that significant differential changes of this nature occur only in the larger, more complex institutions.

In a report on a Michigan State University study, John W. Kidd (Dressel, 1958, Chap. 11) concluded that only through an understanding of peer groups and their dynamics was the institution able to participate intelligently in residence hall educational guidance. For example, the practice of using "real" hall leaders, determined by sociometric methods, as the "designated" leaders had, over a number of years, proved especially valuable.

Becker and Geer (1958) described a Kansas medical school as an extreme

case of the development and operation of a student culture. Students were usually oriented toward medical practice; by mutual agreement they avoided spending time on topics they regarded as too technical or too specialized and therefore of interest only to faculty.

A few other studies have emphasized the relationships between the student and the faculty subcultures. At Vassar the student culture permitted pleasant association with faculty members, but discouraged genuine relationships of a kind that might challenge the basic values of students (Freedman, 1956, p. 17). Hammond (1959) related survival in an engineering program to conformity of students to faculty expectations. For example, seniors showed less concern than freshmen with security in terms of money, but more concern with service to society and with personal status, which were also more acceptable values to the faculty.

Jervis and Congdon (1958) compared faculty rankings of nine educational objectives with those of students at the University of New Hampshire, and found there were marked discrepancies. For example, faculty ranked "intellectual growth" first in importance, while students placed it fourth; students put "vocational preparation" in first place. "Informal intellectual activity" with peers and "student-faculty relationships" were ranked last by students, while faculty preferred least "the degree" and "social growth." Another disconcerting finding was that senior goals, when compared with those of freshmen, failed to show any closer agreement with the faculty objectives.

There have been relatively few studies of differences between colleges in terms of the characteristics of their students, excepting those which have reported college entrance aptitude scores; the latter are known to vary greatly across institutions of higher learning (see Heist, Chap.). It will be seen

later that Vassar and Bennington students were found to differ considerably on a number of general attitude measures.

Brown and Bystryn (1956) studied authoritarianism in three ethnic groups in three college environments; they reported that differences in authoritarianism between freshmen and seniors were greatest for the Jewish minority group members attending the small non-denominational liberal arts college for women. The other two institutions, containing the same ethnic groups, were a large Eastern coeducational university and an upper middle class Catholic liberal arts college for women. The authors suggest that the Jewish minority group in the college for which the difference was greatest may have been especially challenged by the need to change, since most of them were not in fact minority group members in their pre-college communities; they would therefore need to assimilate the social ideology represented by the college to a greater degree in the attempt to identify with a new in-group.

Lazure (1959) compared the kinds of changes observed in Vassar College students with those observed in girls attending French-Canadian Catholic colleges. The differences seemed to depend mostly upon differences in the role-expectations for educated women in the two cultures. The Catholic Canadian role is rather clearly defined, and there are specific ideas about what constitutes acceptable or unacceptable behavior. Vassar's attempt to offer many choices of a way of life arouses more inhibitory reactions; consequently, less personality disturbance is observed to develop among Canadian students.

Gillespie and Allport (1955), administered a special questionnaire to students in ten countries. Students from the United States were found to be inclined toward "privatism," or to view that personal material satisfaction would

be first in importance after graduation. Foreign students, and especially those from poorer countries, were more often interested in future activities which could promote social welfare or progress. Europeans were more likely than Americans to look forward to activities which would develop their own personalities.

Webster (1958) compared women students from three colleges on a Developmental Scale, to be described later. The scale had been constructed using Vassar College samples, and although the freshman-senior difference was in the expected direction for each of the three samples, it was significant only for the Vassar sample. After considering variations in the test reliabilities for numerous groups, Webster concluded that the Arab students and the Southern Negro students would probably express "rebellious independence" (the general factor in the scale) somewhat differently than Vassar students.

Heist and Webster (1960) reported marked variations across a number of liberal arts colleges on some personality characteristics of freshmen and sophomores. Scores on scales for measuring Thinking Introversion, Complexity, Originality, Social Introversion, Impulse Expression, Developmental Status, Estheticism and Theoretical Orientation were much higher at three liberal arts colleges with distinctive intellectual atmospheres than they were for students at a less selective public institution. The selective colleges were heterogeneous on some of these measures, and within one of them there were large variations across three subcultural groups, the "socially oriented," the "independents," and the "intellectual liberals." Heist and Webster recommended, that some attention should be given to these additional personality characteristics, especially in cases where there was already a trend in colleges toward identifying more highly capable students.

Undoubtedly the most prominent work in recent years on the topic of changes in attitudes and values during the college years has been Changing Values in College by Philip Jacob (1957). Jacob reports that there is a profile of values which holds for 75 to 80 per cent of all American college students. The current student generation are gloriously contented in their present activity and in their outlook toward the future. Students are unabashedly self-centered, aspiring above all to material gratifications for themselves and their families. Though conventionally middle-class they have an easy tolerance of diversity and are ready to live in a society without racial, ethnic, or income barriers. The traditional moral virtues, such as sincerity, honesty, and loyalty are highly valued, but there is little inclination to censor laxity, which students consider to be widespread. A need for religion is generally recognized, but students do not expect religious beliefs to govern daily decisions. Rather they expect that these decisions will be socially determined. The general tendency is to be dutifully responsive toward government, but there is little inclination to contribute voluntarily to the public welfare or to seek an influential role in public affairs. Students by and large set great stock in college in general and in their own college in particular, vocational preparation and skills and experience in social relations being regarded as the greatest benefits of college education.

Jacob's book has been criticized from a number of different points of view. Riesman, in a review of Changing Values in College (1958), comments, for example, on the generally undifferentiated quality of Jacob's summaries. Studies which are on sound ground methodologically are not distinguished from those which are much less defensible; findings based on male students are treated as if they held for women as well, or vice versa. Riesman thinks that Jacob's

view of students may be overly censorious. "Materialistic" is perhaps too strong a term to apply to individuals who are not seeking great wealth or power but instead wish to be left alone to live a family-centered life in one of our attractive suburbs. Riesman also notes that Jacob's emphasis on uniformity among college graduates probably tends to obscure the fact that colleges make some difference, for college graduates differ in important ways from the non-college elements of the population, even though these differences may not be marked. Webster (1958) found, in agreement with a few previous studies, that students became more heterogeneous in attitudes during attendance at college, although the absence of a control group did not rule out the possibility that even more diversity might develop in some non-college groups. The general effect of Jacob's work has been valuable, especially because, as Barton (1959) noted, it has served to highlight a number of very important research problems.

Eddy (1959) described the scene on the campuses of 20 colleges, where interviews were obtained from faculty and students. Differences in attitudes between colleges did not seem to be as conspicuous as variations in "the depth and the scope of the task which both the college and its students agree to pursue and in the intensity of the pursuit." Colleges often failed to develop "critical, active and inquisitive minds." A major conclusion was that the college's best contribution to character growth, or to commitment to principles, should result from a properly balanced emphasis on learning.

Earlier investigators sometimes expressed the view that changes in attitudes or values, or lack of such change, might be mostly a function of the particular college at which the study was conducted. Recently, McConnell and Heist (1959) have described the great diversity which exists, on many characteristics among entering freshmen; they note that colleges would necessarily vary greatly,

if only because of these large differences in the kinds of students they admit. Clark (1960) emphasized that the public image of the college is a powerful selection device for determining who will apply for admission; the social ideology of an institution, since it is a significant part of this image, may therefore lead to the admission of predominately liberals or conservatives, changers or non-changers, and so on, depending upon the institution. We recall that Jacob thought that significant changes in values, if any, would probably be confined to a few rather special liberal arts institutions possessing distinctive climates. From the observations of Clark and of McConnell and Heist, both the distinctive climates and the students who change significantly might be due largely to the kinds of students admitted to colleges.

We will continue on our discussion of the changes in students' values and attitudes, but with less emphasis upon college cultures or subcultures. The writers have interviewed students for several years at a number of different kinds of colleges. Very few entering freshmen at residential colleges are apathetic toward their new experiences, including their academic work. In fact, it is easy to be misled into believing that nearly all of them will, within a few years, develop and change in important and fundamental ways. For example, it is easy to suppose that many of these students will become scholars, articulate critics of the culture, and enlightened individualists who are more concerned with personal principles than with social acceptability. Of course, a few do develop in this way. In speculating why the majority do not change as expected, it is natural to turn for explanation, not only to the college situation and the educational experience it has provided, but also to the pre-college histories of individual students. This is an area where we must defer much that could be written, and where, also, much additional research remains to be carried out.

Only a few general impressions will be offered here.

First we need not elaborate on the diversity of social background factors among entering students. Some are, of course, from families of greater wealth, or education, or status than others, and some have had more extensive experiences than others in living away from home. These kinds of factors may be very important, but for the most part they are less fundamental, for purposes of understanding subsequent educational development, than certain psychological characteristics. What research reveals is that most new students are enthusiastic about college experience, but that very few have developed those psychological characteristics which will permit them the necessary freedom within the college culture, and within the larger culture, to become seriously committed to intellectual and aesthetic problems. For example, few students have the kind of personal autonomy, or independence, or even, perhaps, social alienation which permits them to defer for long their vocational or marital aims, in the interest of following other pursuits. The majority of students soon forego experimentation with roles, and any questioning of basic values, in order to secure as soon as possible a relatively definite plan for the work of the future.

But this pervasive caution may be due in part to the absence of conflict during the pre-college years. Freedman (1960) reported that, contrary to what some theorists have believed, there was little evidence that adolescence had been a time of strife or rebelliousness for Vassar subjects. In fact, the only "crises" during the period of attendance at secondary school had been occasional worries about acceptance by peers. Other observers have also noted this fact about contemporary adolescents (Kuhler, 1960; Stone and Church, 1957), and it may be that today, in contrast to earlier periods, certain developmental changes of adolescence are attenuated by deferment. For example, some of the disturbance

which developed in Vassar students, to be discussed later, seemed quite "classically" adolescent, in that it was due to the simplest failures of ego control over impulse expression.

The period of late adolescence, and of attendance at college, is normally marked by diversification and intensification of interests (Strong, 1943; Matteson, 1955). But interests in young persons are significantly influenced by experiences related to the interests. Dressel (1954) observed that the stability over time which has been observed for certain interest patterns may be largely due to lack of experience in activities about which interests are expressed. Matteson (1955; also see Dressel, 1958, p. 187) reported that levels and patterns of interests changed for college students as new experiences became available, and that the selection of educational objectives, for example, choice of major, was a "developmental process," observable in counseling.

Attitudes which distinguish seniors from freshmen also reflect the increased experience of the older students, and in one study of interview data (Webster, 1956) the attitudes of those freshmen who recalled the most conflict and instability in the home, and who had been more independent socially, were more like the attitudes of seniors. Huntington, Martin and Fox (see Merton, 1957) have described how the development of medical students' attitudes is directly dependent upon experience. Lehmann and Ikenberry (1959) reported a study of Michigan State University students in which there was evidence that attitudes and values were affected differentially by different types of experience. On the other hand, attitudes are often not affected by changes in information, even though instructors may assume that they are (Mayhew, 1958). It seems from this research that a logical aim of education would consist in increasing the opportunities for diverse kinds of new experiences.

It is likely, of course, that with an increase in meaningful experiences, non-college subjects will also express changes in attitudes during late adolescence. There have been many studies of attitude differences among college groups, but very little research comparing student attitudes with those of non-college persons of the same age. It is probably impossible to find an entirely satisfactory control group of non-college subjects who could be compared with college students in order to discover directly the extent to which observed changes in attitude could be attributed to the college experience. Plant (1958b) compared students who withdrew voluntarily from San Jose State College with those who remained in school, on the E scale, a measure of ethnocentrism. The groups were initially matched on intelligence and ethnocentrism. Over a two-year period students who remained in college became significantly less ethnocentric in attitude, while those who remained did not. Apparently, education can diminish ethnocentric attitudes in students -- if they decide to remain in college -- an observation in agreement with that of Stern, Stein and Bloom (1956) and Stern and Cope (1956). Subsequently, Plant (1958a) found college seniors to be considerably less ethnocentric than they had been as freshmen, a finding which agrees with results from the research at Vassar.

Religious crises, or disillusionments, with consequent value changes of the kind described by Arsenian before the war, are actually still fairly common in college students today. Freshmen are often confronted for the first time with a wide range of professed religious beliefs and disbeliefs, and with a variety of seemingly disparate moral practices. They naturally compare the values of peers and faculty with those of parents, sometimes without much deliberation, but often with some misgivings. In an extensive longitudinal study now being carried out at the Center for the Study of Higher Education, National Merit Scholarship winners attend-

ing a wide variety of colleges were asked about their need to believe in a religion, their opinion about the emphasis that should be placed on teaching religion in college, and how their religious attitudes had changed since entering college. Response alternatives possible for most of the questions ranged from definite agreement to definite disagreement. The first question was, "Do you personally feel that you need to believe in some sort of religious faith?" The proportions of affirmative responses for 395 men and 175 women, attending a wide variety of institutions, varied from year to year as follows:

	<u>Men</u>	<u>Women</u>
At time of entrance	88%	91%
By end of freshman year	70%	76%
By end of sophomore year	61%	74%
By end of junior year	51%	69%

Evidently, the decrease in positive responses continues for the three years, but may be leveling off for women. When the data for men in various major programs are examined, the trends are similar to that for the total group. There are exceptions, however; engineers change least, and humanities majors (who start with a larger proportion of believers) change most. A large change also occurs for women studying humanities.

The percentages of affirmative replies below, for the total sample, are for the question, "Should American colleges place more emphasis on teaching religious values?"

	<u>In favor</u>	<u>Don't know</u>	<u>Opposed</u>
End of freshman year	40%	11%	49%
End of sophomore year	35%	10%	55%
End of the junior year	32%	10%	58%

Interesting differences appeared for some of the major groups. By the end of the freshman year, humanities students were more opposed to teaching religious values than the results above for the total sample would indicate, and this was also true for men in physics and mathematics; with the exception of men in physics, the opposition of these groups increased for the remaining two years. The proportions in favor and opposed, for women science students and for engineers, remained practically unchanged over this period.

Finally, a question asked for the first time at the end of the freshman year was, "In what way has your attitude toward religion changed since you came to college?" The percentages of responses to the alternatives provided are below.

	<u>Value it more</u>	<u>No change</u>	<u>Value it less</u>
End of freshman year			
Men	48%	40%	12%
Women	42%	46%	12%
End of sophomore year			
Men	47%	33%	19%
Women	57%	31%	12%
End of junior year			
Men	42%	32%	26%
Women	52%	33%	14%

The trend for men, over the two years, to value religion less is significant; the opposite change for women is significant for each of the two intervals, freshman to sophomore, and freshman to junior. Men in various majors showed a similar trend, the changes being greatest for physics, mathematics and humanities majors; 30 per cent of the physics majors indicated that they valued religion more at the end of the junior year. Thus there is a sizeable minority of these high ability students who change their religious attitudes during three years at college. There is a decreasing need for religious faith, especially for men, and a lessened

belief that colleges should teach religious values; there are changes in the value placed on religion, the direction differing for the two sexes. Changes therefore appear to be related both to academic major and to the sex of the respondents.

Further findings from the study of National Merit Scholars may be of interest, because they are contemporary students who are quite homogeneous in ability; all groups have nearly the same high mean scholastic aptitude test scores. Results continue to support the general finding that students become more liberal during college. For example, data appear below for the question, "Should the government provide medical and dental care for citizens who cannot afford such services?"

	<u>End of</u> <u>freshman year</u>		<u>End of</u> <u>junior year</u>	
	YES	NO	YES	NO
Engineering--men	56%	29%	47%	42%
Mathematics--men	55%	19%	70%	11%
Humanities--men	57%	38%	77%	22%
Humanities--women	50%	39%	61%	26%

For the engineering students there was a significant shift from positive to negative, but for the mathematics and humanities majors the significant change is in the opposite direction. This reminds us that students of very similar ability may change attitudes in opposite directions during college, but whether this is due mostly to the kinds of students who enter the different programs, or mainly to variations in the influence of the different curricula, cannot be decided from these data.

The question was asked, "Is the best government the one which governs least?" Replies varied more over major groups than over time; but the trend was an increase in negative responses. Women humanities majors gave more negative responses (71%) than women natural science majors (60%), and the proportions did

not change over the two years. For men, the negative responses were about 68%, both for humanities and for combined biological science and chemistry majors, a proportion which remained the same over the two years. On the other hand, engineering, mathematics and physics majors, who each gave relatively smaller numbers of negative responses at the beginning, significantly increased the number of such responses after two years; at the final testing engineers had the largest proportion of negative responses of any group.

When asked how they would vote if they were old enough, 30% of these able young persons checked "Republican," about 17% "Democrat" and about 50% "Independent." After two years the humanities majors reduced their Republican vote considerably-- for men the change was mostly to Democratic, for women, to Independent. Many mathematics majors who previously had checked Republican also shifted to the Independent category.

In agreement with previous studies, some of these gifted students were therefore found to change their expressed attitudes during two years at college, and most change appeared to be in a liberal direction. Humanities majors apparently changed the most, followed by men mathematics majors. The amount and direction of change is sometimes related to academic major, and the notion that educational experiences during the two years are contributing to the change cannot be ruled out.

As reported in Chapter , changes on various personality measures which take place between freshman and senior year at Vassar College tend not to be associated with a course of study or field of concentration, in contrast to the results reported above. It may be that the different results are a function of the size and general organization of the institutions involved. At relatively small liberal arts colleges there may be a kind of pervasive college culture which somewhat uniformly affects all students, regardless of their field of study. This

is not so likely to be the case, however, at larger institutions with separate schools in business administration, engineering, liberal arts, and the like. It seems reasonable to assume that each school would possess a somewhat different culture or intellectual climate which would affect students differently, at least in some ways. Results reported by Thistlethwaite (1959a) support this interpretation.

From Chapter it can be seen that variations in teaching method often have resulted in only negligible differences in academic progress. Recent research suggests that some of the different methods may be effective if allowances are made for differences in students' personality characteristics. For example, Graves (1958) reported differential achievement in some University of Michigan students, also known to differ on the dimensions of security-insecurity, introversion-extroversion, and some other measures. A number of writers have noted the differing rates of progress of authoritarians and non-authoritarians under different educational programs (for example, Dressel and his colleagues, 1958, pp. 163, 220, 232-241; Sanford, 195 ; Stern and Cope, 1956). Funkenstein, King and Drolette (1957) were able to classify Harvard subjects according to their ability to master stress, as induced in experimental situations; the ability to master stress was related to ego functioning, measured in a number of ways, and also to certain kinds of college achievement or failure.

In an interesting study by Heath (1958, 1959), differential progress in college was reported for three types of students. Over 2000 interviews, plus many group discussions, were recorded in a longitudinal study of a representative sample of 36 men during their years at Princeton. The subjects were classified on an impulse-control dimension, and also according to their degree of involvement with work and with people. Students varied in impulse-control from moody, spontaneous "plungers" (N=8), to the achievement-oriented "hustlers" (N=9) and stable,

noncommitted subjects (N=19). It is interesting that the last group were relatively numerous; they showed more movement than the other groups during college, however, in the direction of genuine increased involvement with work and people. Heath observes that the three types responded best to different educational treatments.

Independently at Vassar College, similar dimensions for measuring the expression of impulses (Sanford, Webster and Freedman, 1957) and certain aspects of ego functioning and development (Webster, Sanford and Freedman, 1957) were also devised in order to obtain optimum descriptions of women students. It may be significant that the independent utilization of these rather similar dimensions began in both studies during the subjects' second year in college. Heath's developmental involvement dimension may emphasize the gradual increasing of ego control to a greater degree than the Vassar measures which, in certain other ways, are similar to it.

In the research at Vassar College, it was planned to emphasize such personality characteristics as intellectual functioning and achievement, authoritarianism and its opposites, masculinity-femininity and psychological health (Sanford, 1956, 1958). It was possible to obtain measures, some of which were the outcome of a special test development program, of these characteristics (Webster, Sanford and Freedman, 1957). We will present some data obtained using the following scales, so brief descriptions of them are necessary.

Social Maturity. Low scorers are authoritarian, compulsive, rigid, punitive, . . . submissive to power, conventional, cynical, anti-intellectual and emotionally suppressed. High scorers are relatively free of these characteristics. The scale was developed in order to provide a measure of authoritarianism which was less ideological than the original F scale (Adorno and others, 1950) and

less susceptible to the effects of what subsequently has been described as "cultural sophistication" (Trow, 1960).

Impulse Expression (see p. 8). High-scorers have, in contrast to low scorers, a greater readiness to express impulses, or to seek gratification of them in overt action or in conscious feeling and attitude. High-scorers are usually dominant, aggressive, autonomous, exhibitionistic, and express interests in sex, excitement and change.

Developmental Status. A scale referred to previously (see p. 8) which is made up of attitude items distinguishing younger from older students. In a sense such items reflect development at Vassar from the freshman to the senior year -- hence the name. High-scorers (seniors) in comparison with low-scorers (freshmen) are flexible and uncompulsive, unpunitive toward persons but critical of the institutional authority of family, state or religions; high-scorers are also intraceptive, nonconforming, uncynical, realistic and mature in interests. Content from the two previous scales also appears in this scale.

Dominance and Confidence. High-scorers indorse items avowing social confidence, imperturbability and leadership ability. In an assessment experiment, where subjects were Vassar alumnae who graduated in the 1930's, low-scorers were found to be more troubled and lacking in self-confidence than high-scoring subjects.

Repression and Suppression (see p. 9).

Social Integration. High-scorers are likely to be quite conventional and free of symptoms of social alienation; low-scorers usually feel that they are unhappy social isolates.

Masculine Role. High-scorers are usually active persons with interests and attitudes characteristic of men in our culture; low-scorers are, on the contrary, more passive, acquiescent and feminine.

The data of Table 1 illustrate well some typical differences which distinguish older from younger college women. At the same time some rather striking institutional differences between two leading liberal arts colleges can be observed.³ The freshmen from the two colleges are very different on some of these measures; test ratios of 7.2, 5.6 and -3.1, for the differences on Developmental Status, Social Maturity and Repression and Suppression, respectively, are easily significant.

Obtained means for Bennington freshmen in Table 1 on Social Maturity, Developmental Status and Impulse Expression are greater than the corresponding means for Vassar seniors; yet the means at Bennington increase over classes, so that senior means still exceed the corresponding Vassar senior means. In both schools the older students are more developed, more mature and more free to express impulses than the younger students; yet the differences between schools are also impressive. Seniors from the two colleges do not differ significantly on Dominance and Confidence ($t=1.2$); and Bennington seniors are highest of the groups, on both Masculine Role and on Repression and Suppression. It seems reasonable, therefore, to infer that the other high scores of Bennington students are not achieved at the cost of either a decrease in prudence or by retrogression to a more conventional or passively feminine role.

The results in Table 1 agree with findings in several studies discussed earlier, for example, those of Clark and of Newcomb. Differing public images

³The data for Bennington students were provided through the courtesy of

attract different students to the two colleges, and the differences persist despite developmental processes which lead students in both schools in the same direction -- which is one of less conservatism, increased tolerance for individual differences, and more freedom to express impulses.

Tables 2 and 3 contain data for a testing experiment and one replication, respectively, carried out at Vassar College as a part of the general research program. Despite the small size of these random samples, the trends are clear: test-retest difference scores are significant, and they increase in magnitude with time spent in college.⁴ When plotted, using time as the abscissa, the gains usually form a convex decelerating curve, showing that greater changes occur during the earlier part of college careers.

Included in the regular test batteries used at Vassar were the well known Ethnocentrism, or E scale, and F scale, for measuring Authoritarianism, or anti-democratic trends (Adorno and colleagues, 1950). Without exception there were always large decreases in mean scores on these characteristics between the freshmen and senior years. The personality syndrome now known as authoritarianism constitutes a particular failure of maturity about which there is available a large amount of convincing research of a quantitative type (Sanford, 1956b). Persons with high F scores have been described as anti-intellectual by a number of investigators. If it is true, as it appears to be, that many college freshmen are anti-intellectual, then the study of authoritarianism in college students should

⁴Other Vassar scale scores are not included in Tables 2 and 3 because there was no theory which held that they should change during college. Except for small first-year differences on Repression and Suppression, and on Masculine Role, the changes observed were in fact negligible.

be of value in educational research. The fact that many high-scorers at Vassar were changeable, to the extent that large decreases occurred in their F scores during college, while others did not change at all merits further study. It appears from interviews that in a few authoritarians the earlier fixations are so severe as to prevent a significant decrease in F scores during college.

Vassar students were also studied by means of the Minnesota Multiphasic Personality Inventory, (Hathaway and McKinley, 1951), a test designed to measure the type and degree of psychopathology affecting the personality (Freedman, 1960; Webster, 1956). A consistent trend is for seniors to be higher than freshmen on the following scales: Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Schizophrenia and Mania. (The K, or Suppressor Scale, score does not differ significantly). In short, seniors subscribed more frequently than freshman to statements indicating psychological or physical disturbances and instability.

Three of the Vassar scales, Social Maturity, Impulse Expression and Developmental Status, have also been administered at a variety of women's colleges, for example, a Negro college in the South, a Catholic college in Canada, and an Eastern women's college which differed somewhat from Vassar, and in all cases the same kinds of trends are found as those which occurred at Vassar. There are impressive inter-college differences, but whatever the initial freshmen means may be, the students subsequently gain in scores during college.

The theoretical implication of the findings discussed above is that there are systematic personality changes going on, at least in college women, during age 17 or 18 and later; and that the developmental changes during this period of late adolescence entail certain regularities in the way problems and conflicts are met and resolved.

The Center for the Study of Higher Education at the University of California is currently studying these kinds of changes, plus changes on a number of new but related dimensions, for both men and women who attend several kinds of colleges and universities (Webster and Heist, 1959; Heist and Webster, 1959). The results should be of interest both to psychologists and to educators.

Discussion and Recommendations

Several general points of interest have emerged from our discussion of research on personality change in college students.

Initial individual differences among entering college freshmen are impressively large; this is true not only for cognitive characteristics, but also for various attitudes and interests which can be measured and which are related to basic values. Educational development, broadly conceived, depends upon these initial psychological characteristics of students, but in addition upon the college cultures within which students must live and work. There has been an increasing research emphasis on both these aspects of the problem of understanding higher education. But students must also be understood as products of the American culture, and as persons who are responding to contemporary cultural pressures; the ethics of the times are reflected in what college students value.

For the first time in history our civilization faces technological and social change of such magnitude that personal value systems must often be modified within single generations. But there is evidence that faculty are not very successful in effecting significant changes in students' values; it appears that they are less successful in this respect than other agencies, for example, the student culture.

Undoubtedly it is no surprise to the majority of educators that a great many students pass through college without experiencing significant changes in basic values, or without becoming much involved in problems which interest teachers. The vast enterprise which is American higher education today cherishes traditional cultural values, including vocational training, rewards for hard work, and social adjustment; these have prevailed, often to the exclusion of an interest in the intellectual and esthetic problems with which scientists and artists are pre-occupied.

Nevertheless, even characteristics which are relatively stable and deeply embedded in personality are somewhat modified during college, and it is probably only a matter of time before we will know more about the way in which these changes are related ". . . to education, maturation, or just getting away from home. . . ." (Mayhew, 1958, p. 230). Also, most educators believe that general education should attempt to provide conditions which favor the re-examination of attitudes and values, and the development of new ones. Dissenters from this viewpoint are mostly parents who want college to emphasize adjustment, and students who view college mainly as a channel to higher income or status.

A number of recommendations can be made on the basis of the research which has been reviewed. In most of the studies it can be seen that three kinds of problems have been superimposed; these concern the changing social conditions, the diversity of personality characteristics of students, and the educational programs and climates of colleges.

Historians, political scientists and other social scientists should combine forces to investigate the meaning of certain central concepts in development which vary with social conditions. For example, we need to know more about the liberalization which usually takes place in students during college, but

which varies in meaning with variations in social climate. The same can be recommended for changes in religious values, which seem to occur universally, but which are at best poorly understood in varying cultural contexts. In addition to some of the studies reviewed in this chapter, there are a few others which seem pertinent to this problem, for example, the book by Riesman and his colleagues (1950), and a report by McClosky (1958).

The entire investigation of student characteristics in any intensive way has hardly begun. Educators and the general public must be kept informed about the value of mental testing in this kind of research. In particular, the interpretation of attitude data naturally raises serious questions of interpretation in which verbal conventions and general ideologies are important, as well as the psychodynamics of subjects. The centrality of ideologies in personality will require much more specialized research, in order to improve our understanding of attitudes and attitude changes.

New ways of conceptualizing interests, attitudes and values should be explored (for example, see Weissman, 1959; and Dressel and Mayhew, 1954). Improved testing methods, for measuring a large variety of personality characteristics, are needed. Measures already known to be important for understanding development, for example, Impulse Expression and Social Maturity, should be studied further, and the search for related measures should continue.

Comparisons should be made of students who show much developmental change with those who show little or no change during college. And these comparisons should be included in a variety of research designs which allow for variations in educational atmospheres.

Colleges should continue to experiment with their educational programs. Research indicates that the role of experience in personality change is crucial,

and educational programs which vary in the opportunities provided for diverse kinds of experiences should be studied. Some effort should be made to involve faculty in research focused upon various kinds of evaluations of students, so that the limitations of particular methods, for example, the use of course grades, will be better appreciated. Relationships between faculty and students should be a topic for extensive research. In particular, it seems that differential teaching methods have often produced equivocal or insignificant results because personality differences among students and teachers have not been taken into account; here further research promises to bring some clarification.

Educational research should make full use of what is known in related disciplines, for example, psychiatric counseling and industrial psychology. Perhaps the educational process can be improved along lines suggested by some of the newer methods of psychotherapy, where maximum development is encouraged while dependence, or transference, is largely avoided (see Wedge, 1958, Chap. 14; Nixon, 1960; Farnsworth, 1957, 206). Industrial studies of organizational behavior have been sufficiently fruitful that the principles which have emerged may also be of some value for understanding college subcultures (Argyris, 1957).

Finally, the challenge to educators and personality theorists alike is to find principles of development which apply for college students under varying social climates and conditions. A few leading psychologists have been evolving theory by which our understanding of personality growth during college can be improved (Erikson, 1956; Sanford, 1956, 1958, see Chap. ; White, 1952). The relation of this theory to the research findings which have been discussed is still largely unclarified.

In this chapter we have discussed a number of kinds of changes which are important for understanding personality growth and development in college students.

It is obvious that not enough is known about these changes, or about how they are interrelated within personality. But the studies which have been reviewed suggest that research of this nature can produce much that is of scientific interest. At the same time there is every indication that continued research will increase our understanding of the educational process, to the advantage of higher education generally.

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Table 1

Means and Standard Deviations of Bennington and Vassar
Students on the Scales of the Vassar College Attitude Inventory

	<u>Vassar freshmen</u>	<u>Bennington freshmen</u>	<u>Bennington sophomores</u>	<u>Benn. juniors</u>	<u>Benn. seniors</u>	<u>Vassar seniors</u>
<u>Social Maturity</u>						
mean	82.13	94.08	97.88	98.48	104.86	92.99
s.d.	15.15	13.80	12.90	11.20	12.70	15.01
<u>Developmental Status</u>						
mean	23.57	36.26	39.57	41.60	41.64	34.70
s.d.	9.23	9.53	10.10	8.96	10.20	11.01
<u>Impulse Expression</u>						
mean	44.12	56.92	60.80	61.79	58.18	51.86
s.d.	15.57	18.80	17.80	16.30	14.40	16.79
<u>Dominance and Confidence</u>						
mean	53.86	53.28	50.49	55.98	57.14	54.70
s.d.	13.06	10.20	12.15	11.80	12.80	13.11
<u>Social Integration</u>						
mean	78.08	68.22	66.55	69.75	75.34	76.96
s.d.	14.39	15.80	17.30	15.80	14.00	13.74
<u>Repression and Suppression</u>						
mean	90.40	79.68	81.04	83.37	95.58	90.62
s.d.	22.67	22.90	21.90	23.70	22.30	20.85
<u>Masculine Role</u>						
mean	37.09	38.92	40.08	39.50	42.34	39.32
s.d.	6.87	7.83	6.14	6.73	7.07	7.09
<u>Total N</u>	321	50	51	49	50	197

Table 2

A comparison of test-retest norms for a random sample of each of three Vassar College freshman classes -- each tested as freshmen during the first week of the college semester and with retesting taking place at the end of the freshman year for one group, the sophomore year for the second group, and the junior year for the third group. The scales include: 3 Vassar scales (IE: Impulse Expression, DS: Developmental Status, and SM: Social Maturity), Fx (Flexibility) from the California Personality Inventory, Pd (Psychopathic Deviate) from the Minnesota Multiphasic Personality Inventory, and F (Authoritarianism) and E (Ethnocentrism) from the Public Opinion Survey.

		Freshmen 57-58 Retested as Freshmen N = 54		Freshmen 56-57 Retested as Sophomores N = 55		Freshmen 55-56 Retested as Juniors N = 53	
Scale		$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.
IE	Test	42.33	11.51	44.20	14.14	42.98	11.60
	Retest	48.57	13.77	52.20	16.74	53.32	14.25
DS	Test	23.68	8.41	26.60	9.47	26.00	7.47
	Retest	29.81	10.48	34.51	9.25	36.34	8.44
SM	Test	84.22	14.75	84.27	14.75	85.26	10.83
	Retest	89.74	16.36	95.07	14.15	96.38	11.58
Fx	Test	12.37	3.97	12.07	3.90	11.72	2.96
	Retest	12.46	3.99	14.35	3.36	13.70	3.22
Pd	Test	16.96	3.76	15.58	4.23	14.87	2.93
	Retest	16.83	4.34	16.78	4.08	16.70	4.20
F	Test	118.31	19.59	104.27	24.25	109.56	18.48
	Retest	105.48	22.02	94.05	22.49	95.60	21.33
E	Test	58.33	18.83	49.64	16.21	48.62	14.11
	Retest	53.83	19.20	47.31	15.29	45.91	16.63

Table 3

A replication of the experiment of Table 2. A comparison of test-retest norms for a random sample of each of three Vassar College freshman classes -- each tested as freshmen during the first week of the college semester and with re-testing taking place at the end of the freshman year for one group, the sophomore year for the second group, and the junior year for the third group. The scales include: 3 Vassar scales (IE: Impulse Expression, DS: Developmental Status, and SM: Social Maturity), Fx(Flexibility) from the California Personality Inventory, Pd (Psychopathic Deviate) from the Minnesota Multiphasic Personality Inventory, and F (Authoritarianism) and E (Ethnocentrism) from the Public Opinion Survey.

		Freshmen 58-59 Retested as Freshmen N = 62		Freshmen 57-58 Retested as Sophomores N = 59		Freshman 56-57 Retested as Juniors N = 59	
Scale		$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.
IE	Test	40.35	14.01	45.92	15.29	42.75	17.12
	Retest	45.65	17.99	53.86	18.85	50.17	15.61
DS	Test	24.76	9.97	25.32	9.03	25.37	8.44
	Retest	29.26	10.48	34.47	9.67	34.88	9.78
SM	Test	88.02	17.04	85.86	14.49	85.31	15.35
	Retest	93.11	16.32	94.41	14.44	94.27	16.62
Fx	Test	11.29	4.63	11.63	3.74	11.49	3.56
	Retest	12.27	4.27	13.76	3.72	12.64	3.64
Pd	Test	15.50	3.44	16.46	3.81	14.81	3.61
	Retest	15.60	3.46	17.27	4.87	16.42	4.27
F	Test	114.27	26.10	113.54	21.47	102.83	24.34
	Retest	104.85	24.10	97.46	21.87	94.21	24.18
E	Test	54.15	20.12	57.22	20.23	50.17	18.87
	Retest	52.34	18.27	50.68	18.95	44.10	16.95